



# AFCTN Test Report AFCTB-ID 94-030 93-043



## Technical IGES Transfer

Using:

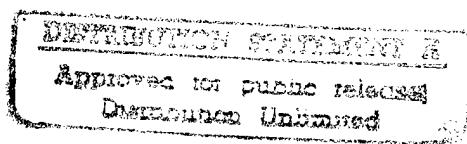
AUTODESK, Incorporated's Data

MIL-D-28000A (IGES)

Quick Short Test Report



03 May 1993



19960822 157

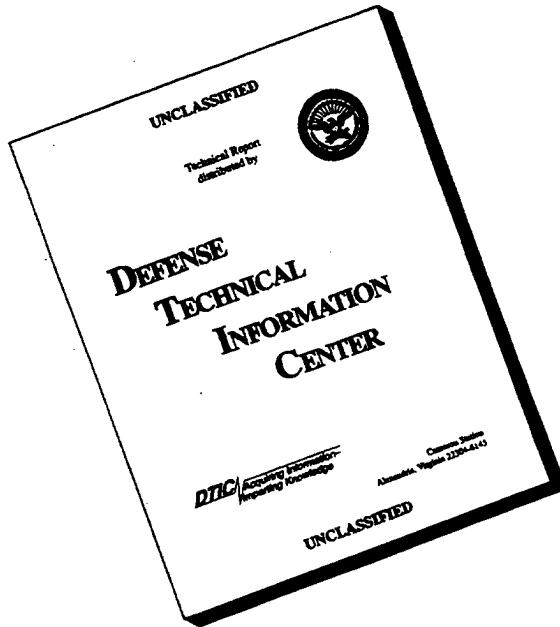


Prepared for

Electronic Systems Center

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**AFCTN Test Report**  
**94-030**

**AFCTB-ID**  
**93-043**

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**Technical IGES Transfer**  
**Using:**  
**AUTODESK, Incorporated's Data**

**MIL-D-28000A (IGES)**

**Quick Short Test Report**

**03 May 1993**

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**Prepared By**  
Air Force CALS Test Bed  
Wright-Patterson AFB, OH 45433

**AFCTB Contact**  
Gary Lammers  
(513) 427-2295

**AFCTN Contact**  
Mel Lammers  
(513) 427-2295

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## 1. Introduction

### 1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

## **1.2 Purpose**

The purpose of the informal test, reported in this QSTR, was to analyze AUTODESK's AutoCAD *IGES* Translator Version 5.1 for Release 12 ability to generate valid CALS Class I and Class II *IGES* files. AUTODESK used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 3.5" disk.

## 2. Test Parameters

**Test Plan:** AFCTB 93-043

**Date of Evaluation:** 03 May 1993

**Evaluator:**  
George Elwood  
Air Force CALS Test Bed  
DET 2 HQ ESC/AV-2P  
4027 Colonel Glenn Hwy  
Suite 300  
Dayton OH 45431-1672

**Data Originator:**  
Joel Petersen  
AUTODESK, Inc.  
2320 Marinship Way  
Sausalito CA 94965  
(415) 289-4279

**Data Description:**  
Technical IGES Transfer Test  
1 Document Declaration file  
2 Initial Graphics Exchange Specification  
(IGES) files

**Data Source System:**  
1840  
**HARDWARE**  
Unknown  
**SOFTWARE**  
Unknown

IGES  
**HARDWARE**  
Unknown  
**SOFTWARE**  
AutoCAD R12 IGES V5.1

**Evaluation Tools Used:**

**MIL-STD-1840A (TAPE)**  
PC 486/50

AFCTN Tapetool v1.2.9 DOS

**MIL-D-28000 (IGES)**

Sun SparcStation 2

ArborText *iges2draw*

IGES Data Analysis (IDA) *Parser/Verifier v92*

IDA *IGESView v3.05*

IDA *IGESXpert v1.0*

International TechneGroup Incorporated  
(ITI) *IGES/Works v1.3*

Rosetta Technologies *Prepare*

Rosetta Technologies *Preview v3.2*

PC 486/50

AUTODESK AutoCAD 386 R12 IGES v5.1.01

AUTODESK AutoCAD 386 R11

AUTODESK Micro Engineering Solutions  
(MES) *CheckMark v1.0*

Cadkey *Cadkey v5.02*

Cadkey *Cadkey v4.06*

IDA *IGESView Windows*

Wiz Worx *IGESDRAW*

**Standards  
Tested:**

MIL-STD-1840A

MIL-D-28000A

### **3. 1840A Analysis**

#### **3.1 External Packaging**

The 3.5" disk arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a commercial disk mailer. The exterior of the mailer was not marked with the magnetic warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The 3.5" disk was not enclosed in an anti-static barrier bag or barrier sheet material as required by MIL-STD-1840A, para. 5.3.1.2. Enclosed in the mailer was a packing list showing all files recorded on the disk.

#### **3.2 Transmission Envelope**

The 3.5" disk received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

##### **3.2.1 Tape Formats**

The 3.5" disk was run through the AFCTB *Tapetool v1.2.9* utility. The files on the disk were placed in the correct sub-directory as required by the AFCTB.

##### **3.2.2 Declaration and Header Fields**

No errors were found in the Document Declaration file or data file headers.

#### 4. IGES Analysis

The two files on the 3.5" disk were evaluated using IDA's *Parser* and *Verifier*. No problems were reported from these utilities.

Both files were checked using a word processor for the required CALS MIL-D-28000A statement. Both files contained this statement.

The AFCTB has several tools for viewing IGES files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The two files were converted using ArborText's *iges2draw* utility without a reported error. When the converted files were read into Island Graphics' *IslandDraw*, only the left side of the image was displayed. The files were converted using the "bound data" switch on the ArborText translator. The second files were displayed and printed in total. In both of the Class I and II drawings, within the general note block, the word SIMPLE was printed backward.

The two files were read into IDA's *IGESView* without a problem. The image displayed correctly. In both of the Class I and Class II files, within the general note block, the word SIMPLE was printed backward. The Class II file was rotated to check for the 3-D entities, which were found.

The two files were read into IDA's *IGESView for Windows* without a problem. In both of the Class I and Class II files, within the general note block, the word SIMPLE was printed backward. The Class II file was rotated and the 3-D entities were noted. In the Class II file the unbounded plain block was moved off the basic sheet to the left. The text was duplicated in both the correct location and the transposed location.

The two files were read into ITI's *IGESWorks* without a reported error. In both the Class I and Class II Drawings, within the general note block, the word SIMPLE was printed

backward. When the Class II file was rotated, no 3-D entities were noted with the exception of the cross hair center points.

The files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were read into *Preview* displayed and printed. On the Class I drawing in the general note block, the word SIMPLE was printed backward. The 3-D entities in the Class II drawing were noted.

The files were converted using Autodesk's *AutoCAD R12 v5.1* IGES translator (AIT). The resulting files were displayed and printed. The Class I did not display completely on the screen. Since CALS Class I files contain views without clipping planes, the AIT 5.1 IGESIN translator must calculate a clipping volume for the resulting *AutoCAD* viewport. In this case, the calculation was in error (per Autodesk, this error has been corrected in AIT 5.2AS). For AIT 5.1 users, the model is still correct and can be plotted correctly from *AutoCAD*'s model space, which is entered by the TILEMODE 1 command after IGESIN. Checking the translation log it noted a warning that a new view volume had been generated. The lower left corner of the image was displayed in both *AutoCAD R11* and *R12*. The Class II file appeared to be complete.

```
*** Warning (ACAD_NEW_VIEW_VOLUME_GENERATED) ***
( DE: 1 TF: 410:0 )
A new view volume has been generated for the view with:
  XMIN (-1.387879), XMAX (18.386881),
  YMIN (-1.386881), YMAX (12.386881),
  ZMIN (-1.886881), ZMAX (1.886881).
```

The files were converted using Cadkey's *ig2c* utility without a reported error. The resulting files were read into Cadkey's *Cadkey*, displayed and printed. The Class I file was rotated 90 degrees, several entities were missing and none of the text was displayed. This is not considered a problem as the text and entities were displayed when viewed in a top view. The word SIMPLE was displayed correctly. During the conversion only five noted entities were reported. The 3-D entities in the Class II file were noted.

---

The files were read into MES's *CheckMark* without a reported error. With the exception of the slant on the word text, in both Q001 and Q002, the images appear to be correct. The Class II file displayed the 3-D entities when viewed from the side.

The files were printed using Wiz Worx's *IGESDRAW* utility. No errors were noted during this procedure.

The Class I file with backward vertical text, in the general note block, was investigated further. It was found that the text in the submitted file consisted of individual letters. In the basic CALS Class I file this was one word with a vertical alignment and slant angle. In the basic AFCTN file the values were 1.0461 for the slant (index 6), 4.71 for the rotation angle (index 7), and a rotation flag of 1 (index 9). In the submitted file the text is a subfigure instance entity 408. The slant, rotation angle, and rotation flag were all the same as the basic file. The starting location of the first letter was the same.

The pointers for this word went from

```
DE101 -> PD192 -> DE97 -> PD188 -> DE85 -> PD176 = S
          |       |
          |       -> DE87 -> PD178 = I
          |       |
          |       -> DE89 -> PD180 = M
          |       |
          |       -> DE91 -> PD182 = P
          |       |
          |       -> DE93 -> PD184 = L
          |       |
          |       -> DE95 -> PD186 = E
```

Per Joel Petersen of AUTODESK, "Each of the general note entities referenced by the subfigure definition has one substring with one character from the word "SIMPLE" which is vertically oriented and rotated 270 degrees. If the subfigure were to be instanced without transformation, the word SIMPLE should appear as ELP MIS with each character rotated 270 degrees (for example)



The subfigure instance entity references this subfigure definition with a matrix attached that rotates the subfigure 90 degrees, which effectively reorients the text vertically as shown in figure 10.1.3."

IGES files on this 3.5" disk meet the CALS MIL-D-28000A Class I and Class II specification.

## **5. SGML Analysis**

No Standard Generalized Markup Language (SGML) files were included on the 3.5" disk.

## **6. Raster Analysis**

No Raster files were included on the 3.5" disk.

## **7. CGM Analysis**

No Computer Graphic Metafile (CGM) files were included on the 3.5" disk.

## 8. Conclusions and Recommendations

In summary, the 3.5" disk from AUTODESK Inc. was correct, with no reported errors in the CALS header or Document Definition files. The physical structure of the disk meets the CALS MIL-STD-1840A requirements.

The 3.5" disk contained two IGES files. Both files meet the CALS MIL-D-28000A specification. The text string "SIMPLE" was incorrectly translated (appearing backwards) by four systems, while another four handled the translation correctly.

The 3.5" disk provided by AUTODESK meets the CALS MIL-STD-1840A requirements.

## 9. Appendix A - Tapetool Report Logs

### 9.1 3.5" Disk Catalog

Air Force Air Force CALS Test Network Catalog Evaluation - Version 1.2; Release 9 (0)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information  
ANSI X3.27 (1987) - File Structure and Labeling of Magnetic Tapes  
for Information Interchange  
ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Mon May 03 09:57:06 1993

MIL-STD-1840A File Catalog

File Set Directory: C:\TT19\SET012

Page: 1

File Name	File Type	Record Format/ Length	Block Length/ Total	Selected/ Extracted
D001	Document Declaration	D/00256	02048/000000	Extracted
D001Q001	IGES	F/00080	02000/000000	Extracted
D001Q002	IGES	F/00080	02000/000000	Extracted

Catalog Process terminated normally.

## 9.2 Tape File Set Validation Log

Air Force Air Force CALS Test Network File Set Evaluation - Version 1.2; Release 9 (O)

Standards referenced:

MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Mon May 03 09:57:07 1993

MIL-STD-1840A File Set Evaluation Log

File Set: SET012

Found file: D001

Extracting Document Declaration Header Records...

Evaluating Document Declaration Header Records...

srcsys: Joel Petersen, AUTODESK Inc., 2320 Marinship Way, Sausalito, CA 94965

srcdocid: AIT Test of the CALS MIL-D-28000 Class I and Class II

srcrelid: NONE

chglvl: ORIGINAL

dteisu: 19930427

dstsys: George Elwood, Air Force CALS Testbed, Suite 200, 4027 Col. Glenn Highway, Day OH 45431

dstdocid: AITTEST

dstrelid: NONE

dtetrn: 19930427

dlvacc: NONE

filcnt: Q2

ttlcls: Unclass

doccls: Unclass

doctyp: IGES

docttl: NONE

Found file: D001Q001

Extracting IGES Header Records...

Evaluating IGES Header Records...

srcdocid: tesst

dstdocid: AFCTB

txtfilid: NONE

figid: NONE

srcgph: NONE

doccls: UNCLASSIFIED

notes: NONE

Saving IGES Header File: D001Q001.HDR  
Saving IGES Data File: D001Q001.IGS

Found file: D001Q002  
Extracting IGES Header Records...  
Evaluating IGES Header Records...

srcdocid: tesst  
dstdocid: AFCTB  
txtfilid: NONE  
figid: NONE  
srcgph: NONE  
doccls: UNCLASSIFIED  
notes: NONE

Saving IGES Header File: D001Q002.HDR  
Saving IGES Data File: D001Q002.IGS

Evaluating numbering scheme...  
No errors were encountered during numbering scheme evaluation.  
Numbering scheme evaluation complete.

Checking file count...  
No errors were encountered during file count verification.  
File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.

## 10. Appendix B - Detailed IGES Analysis

### 10.1 File One

#### 10.1.1 Parser/Verifier Log

```
*** IGES DATA FILE ANALYSIS ***
***          MARCH 1992          ***
***    IGES Data Analysis      ***
***          (708) 449-3430      ***
```

Input file is /novell/9343/d001q001.igs

Checking conformance to CALS Class I (MIL-D-28000A 2/10/92)

Today is May 3, 1993 8:50 AM

##### \*\*\* File and Product Name Information \*\*\*

```
File name from sender      = 'C:\AITCALS1.IGS'
File creation Date.Time   = '930427.103537'
Model change Date.Time    = '930427.100554'
Author                    = 'Joel Petersen'
Department                = 'AUTODESK Inc.'
Product name from sender = 'CALS Class I Test File'
Destination product name = 'CALS Class I Test File'
```

##### \*\*\* Parameter Delimiters \*\*\*

```
Delimiter = ','
Terminator = ';'
```

##### \*\*\* Originating System Data \*\*\*

```
System ID                  = 'AutoCAD-12_c2 (386 DOS Extender)'
Preprocessor version        = 'IGESOUT (v5.1.01 Feb 22 1993)'
Specification version       = 6 (IGES 4.0)
```

##### \*\*\* Precision levels \*\*\*

```
Integer bits = 32
Floating point - Exponent = 38 Mantissa = 6
Double precision - Exponent = 99 Mantissa = 15
```

##### \*\*\* Global Model Data \*\*\*

---

Model scale = 1.0000E+00  
Unit flag = 1  
Units = 'IN'  
Line weights = 32767  
Maximum line thickness = 3.276700E+01  
Minimum line thickness = 1.000000E-03  
Granularity = 1.650000E-08  
Maximum coordinate = 1.650000E+01

Drafting standard applicable to original data is ANSI.

\*\*\* Status Flag Summary \*\*\*

Blank status:	Visible	301
	Blanked	0
Independence:	Independent	98
	Physically Subordinate	202
	Logically Subordinate	1
	Totally Subordinate	0
Entity use:	Geometry	115
	Annotation	136
	Definition	50
	Other	0
	Logical/Positional	0
	2D parametric	0
	Not Specified	0
Hierarchy:	Structure DE applies	194
	Subordinate DE applies	107
	Hierarchy property applies	0
	Not Specified	0

\*\*\* Entity Occurrence Counts \*\*\*

Entity	Form	Level	Count	Type
-----	-----	-----	-----	-----
100	0	0	3	Circular arc
106	11	0	6	Copious data - Piecewise planar, linear string(2D path)
106	63	0	4	Simple closed planar curve
110	0	0	31	Line
124	0	0	6	Transformation matrix

---

126	0	0	4	Rational B-spline curve
212	0	0	134	General note
308	0	0	50	Subfigure definition
404	0	0	1	Drawing
406	15	0	2	Property - Name
406	16	0	1	Property - Drawing size
406	17	0	1	Property - Drawing units
408	0	0	57	Single subfigure instance
410	0	0	1	View - Orthographic parallel

\*\*\* Entity Count by Level \*\*\*

Level	Count
0	301

\*\*\* Labeling Information \*\*\*

0% of the entities are labeled.

Unlabeled 301

\*\*\* Line Fonts Used in Data \*\*\*

100 102 104 106 108 110 112 114

-	-	-	-	-	-	-	-	Undefined
3	-	-	10	-	31	-	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

116 118 120 122 124 125 126 128

-	-	-	-	6	-	-	-	Undefined
-	-	-	-	-	-	4	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

130 132 134 136 138 140 142 144

-	-	-	-	-	-	-	-	Undefined
---	---	---	---	---	---	---	---	-----------

-	-	-	-	-	-	-	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

\*\*\* Line Widths Used in Data \*\*\*

Weight	Count	Width
Defaulted	301	(0.0010)

\*\*\* Colors Used in Data \*\*\*

Defaulted	62
Red	229
White	10

\*\*\*\*\*  
\*\*\*\*\* ENTITY ANALYSIS \*\*\*\*\*  
\*\*\*\*\*

\*\*\* Entity type: 100

\*\*\* Entity type: 106

\*\*\* Entity type: 110

-- 31 lines averaging 6.299970E+00 units --

\*\*\* Entity type: 124

6 transformation matrices, 6 non-zero translations.

NOTE 2341: 6 matrices contain translation information.

\*\*\* Entity type: 126

\*\*\* Entity type: 212

134 text strings in data file.

Average text aspect ratio in file is 0.9912882.

Minimum text aspect ratio in file is 0.6197333.

Maximum text aspect ratio in file is 1.4857143.

FONTS USED IN FILE

FONT	COUNT	NAME
1	132	Default ASCII Style
1002	2	Symbol Font 2

\*\*\* Entity type: 308

Subfigure name at D 81: '\*U0'.

Number of included entities = 8.

Subfigure name at D 97: '\*U1'.

Number of included entities = 6.

<<<< PART OF LOG FILE REMOVED HERE >>>>

Subfigure name at D 589: '\*U49'.

Number of included entities = 3.

\*\*\* Entity type: 404

Drawing at D 601 contains 1 views.

Drawing at D 601 contains 0 annotation entities.

ERROR 4019: CALS Class I requires exactly one property pointer at D 601.

\*\*\* Entity type: 406

Independent property at D 5 applies to level 0.

\*\*\* Entity type: 408

Subfigure instance at D 83 references subfigure at D 81.

Subfigure instance at D 101 references subfigure at D 97.

<<<< PART OF LOG FILE REMOVED HERE >>>>

Subfigure instance at D 591 references subfigure at D 589.

\*\*\* Entity type: 410

Scale of view at D 1 is 1.000000E+00.

Orthographic View entity at D 1 has 0 clipping planes specified.

XMIN = Not Set XMAX = Not Set

YMIN = Not Set YMAX = Not Set

ZMIN = Not Set ZMAX = Not Set

\*\*\* Message Summary \*\*\*

4000: 1 Miscellaneous CALS messages

\*\*\* Error Summary \*\*\*

0 fatal errors  
0 severe errors  
1 errors  
0 warnings  
0 cautions  
0 nitpicks  
1 notes

\*\*\* End of Analysis of /novell/9343/d001q001.igs \*\*\*

## 10.1.2 Parser Log - AutoCAD R12

Title: IGESIN Journal (v5.1 Nov 05 1992)

=====

File: I:/9343/D001Q001.xli

Date: Tue, May 04, 1993

Time: 07:09:52

=====

EVALUATION VERSION -- NOT FOR RESALE

Translator S/N: 117-10075750

Translating from IGES file: I:/9343/D001Q001.IGS  
to AutoCAD Drawing: C:\D001Q001.dwg

=====

Options obtained from: default settings

Curves Approximated to Tolerance of 0.01

Surfaces Approximated to Tolerance of 0.01

Text Font/Style mapping:

IGES Text font	Style Name	ACAD Font
0	SYMBOL0	iges0
1	STANDARD	txt
2	LEROY	txt
3	FUTURA	txt
6	COMP80	txt
12	GOTHICE	gothice
13	GOTHICI	gothici
14	ROMANS	romans
17	ROMANT	romant
18	ROMAND	romand
19	OCR	txt
1001	SYMBOL1	iges1001
1002	SYMBOL2	iges1002
1003	SYMBOL3	iges1003
2001	KANJI	bigfont

IGES Linefont/AutoCAD Linetype mapping

IGES Line Font	AutoCAD linetype	Shape file
0	BYLAYER	
1	CONTINUOUS	
2	DASHED	acad.lin
3	PHANTOM	acad.lin
4	CENTER	acad.lin

5

DOT

acad.lin

=====  
Parse phase

=====  
Start Section:

CONFORMANCE:

This IGES file conforms to Class I (Technical Illustration Subset)  
of the MIL-D-28000A (10 February 1992) specification.

CREATED BY:

Joel Petersen  
AUTODESK Inc.  
2320 Marinship Way  
Sausalito CA, 94965  
(415) 289-4279

ILLUSTRATION NUMBER or IDENTIFIER:

1

Global Section:

Parameter Delimiter: ,  
Record Delimiter: ;  
Sending Product ID: CALS Class I Test File  
File Name: C:\AITCALS1.IGS  
System ID: AutoCAD-12\_c2 (386 DOS Extender)  
Preprocessor Version: IGESOUT (v5.1.01 Feb 22 1993)  
Size of Integer: 32  
Sgl. Precision Mag: 38  
Sgl. Precision Sig: 6  
Dbl. Precision Mag: 99  
Dbl. Precision Sig: 15  
Receiving Product ID: CALS Class I Test File  
Model Space Scale: 1.000000  
Unit Flag: 1  
Unit String: IN  
# of Line Weights: 32767  
Maximum Line Width: 32.767000  
Creation Date: 04/27/93 10:35:37  
Minimum Resolution: 0.000000  
Maximum Coordinate: 16.500000  
Author: Joel Petersen  
Organization: AUTODESK Inc.

---

IGES Version Number: 6  
Drafting Standard: 3

Entity Summary:

Type	Form	Description	Count
100	0	Circular Arc	3
106	11	Planar Piecewise Linear Curve	6
106	63	Simple Closed Planar Curve	4
110	0	Line	31
124	0	Transformation Matrix	6
126	0	Rational B-Spline Curve (General)	4
212	0	General Note (Simple)	134
308	0	Subfigure Definition	50
404	0	Drawing (form 0)	1
406	15	Property (Name)	2
406	16	Property (Drawing Size)	1
406	17	Property (Drawing Units)	1
408	0	Subfigure Instance	57
410	0	View	1
			Total 301

Translation phase

Drawing Entity (404 Form 0) at DE 601, with  
name = C:\CALS1,  
size = 8.500000, 11.000000,  
units = IN,  
was processed in the AutoCAD drawing file: C:\D001Q001.dwg

\*\*\* Warning (ACAD\_NEW\_VIEW\_VOLUME\_GENERATED) \*\*\*  
( DE: 1 TF: 410:0 )  
A new view volume has been generated for the view with:  
XMIN (-1.387879), XMAX (18.386881),  
YMIN (-1.386881), YMAX (12.386881),  
ZMIN (-1.886881), ZMAX (1.886881).

IGES Entity Summary

Type	Form	Description	Count	Processed	Errors
100	0	Circular Arc	3	3	0
106	11	Planar Piecewise Linear Curve	6	6	0

106	63 Simple Closed Planar Curve	4	4	0
110	0 Line	31	31	0
126	0 Rational B-Spline Curve (General)	4	4	0
212	0 General Note (Simple)	134	134	0
308	0 Subfigure Definition	50	50	0
404	0 Drawing (form 0)	1	1	0
406	15 Property (Name)	2	2	0
406	16 Property (Drawing Size)	1	1	0
406	17 Property (Drawing Units)	1	1	0
408	0 Subfigure Instance	57	57	0
410	0 View	1	1	0
<hr/>				
<b>Totals</b>		<b>295</b>	<b>295</b>	<b>0</b>

#### AutoCAD Entity Summary

Entity	Created	Errors
LINE	31	0
CIRCLE	1	0
TEXT	134	0
ARC	2	0
INSERT	63	0
POLYLINE	14	0
BLOCK	56	0
<b>Totals</b>	<b>301</b>	<b>0</b>

#### Error Summary:

The following message was issued 1 time(s)

A new view volume has been generated for the view with:

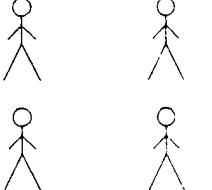
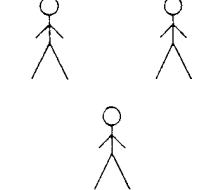
XMIN (%lf), XMAX (%lf),  
YMIN (%lf), YMAX (%lf),  
ZMIN (%lf), ZMAX (%lf).

Status: 0  
Warning: 1  
Error: 0  
Fatal: 0

#### Elapsed Time:

Processor: 00:00:41  
Clock: 00:00:41

### 10.1.3 Output AutoCAD R12

LINE (110)	PARAMETRIC SPLINE CURVE (112)	TRANSFORMATION MATRIX D=1 (124 FORM 0)	RATIONAL B-SPLINE CURVE (126 FORM 0)	RATIONAL B-SPLINE LINE (126 FORM 0)
	SIMPLE 	DUAL STACK	IMBEDDED	SUPER
RATIONAL B-SPLINE CURVE HYPERBOLIC ARC (126 FORM 5)	GENERAL NOTE - SIMPLE (212 FORM 0)	NOTE - DUAL STACK (212 FORM 1)	NOTE - IMBEDDED FONT CHANGE (212 FORM 2)	NOTE - SUPERSCRIPT (212 FORM 3)
M STACK CENTER	M STACK RIGHT	S FRACTION	DUAL - $\frac{1}{P}$ STACK BOTTOM	IMBEDDED $\frac{1}{P}$ $\neq$ F
NOTE - MULTI STACK, CENT JUST (212 FORM 7)	NOTE - MULTI STACK, RIGHT JUST (212 FORM 8)	NOTE - SIMPLE FRACTION (212 FORM 100)	NOTE - DUAL STACK FRACTION (212 FORM 101)	NOTE - FONT/DC FRACTION (212 FORM 102)
				
SINGLE SUBFIGURE INSTANCE (408)	RECTANGULAR SUBFIGURE INSTANCE (412)	CIRCULAR SUBFIGURE INSTANCE (414)		

#### 10.1.4 Output Cadkey v5.02


### 10.1.5 Output CheckMark v1.00

### 10.1.6 Output IGESView Windows

### 10.1.7 Output IGESView

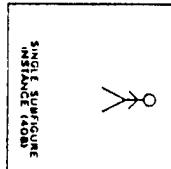
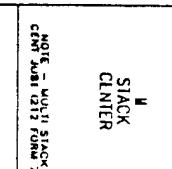
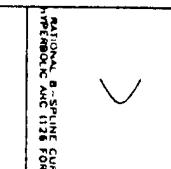
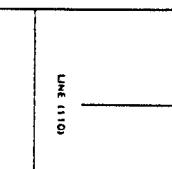
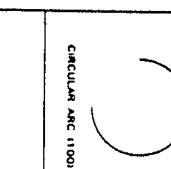
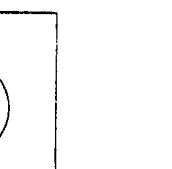
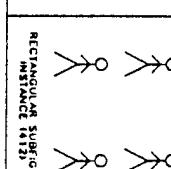
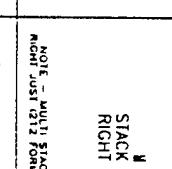
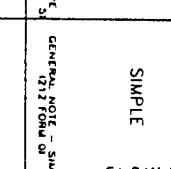
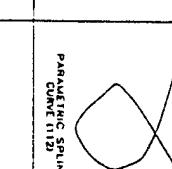
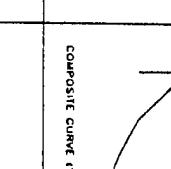
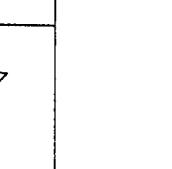
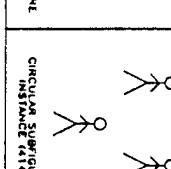
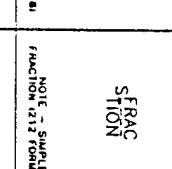
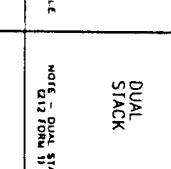
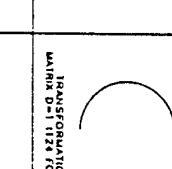
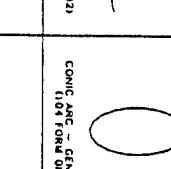
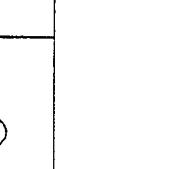
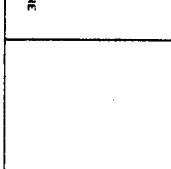
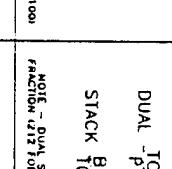
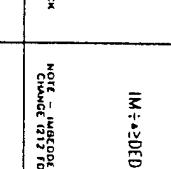
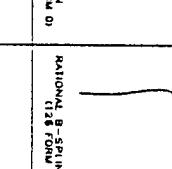
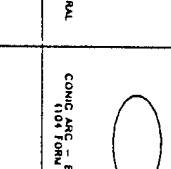
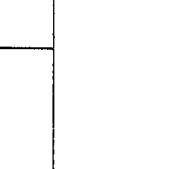
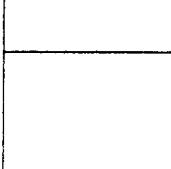
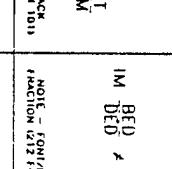
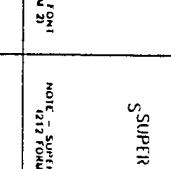
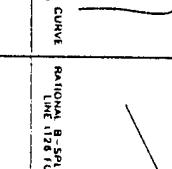
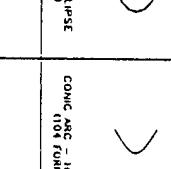
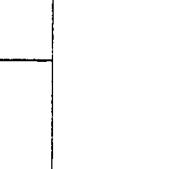
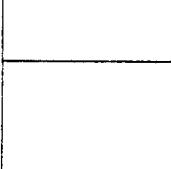
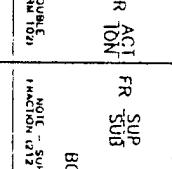
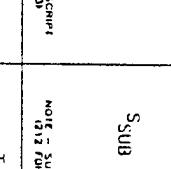
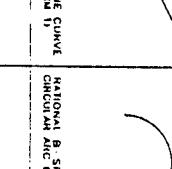
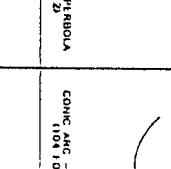
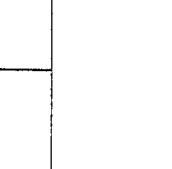
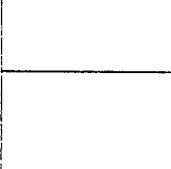
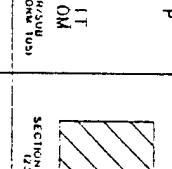
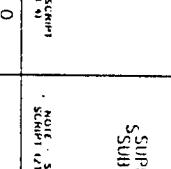
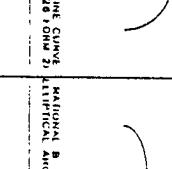
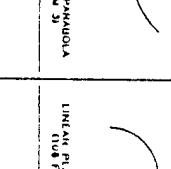
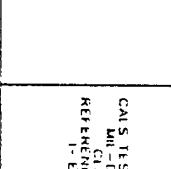
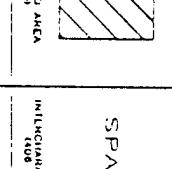
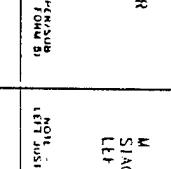
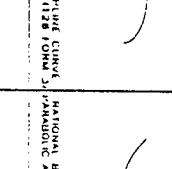
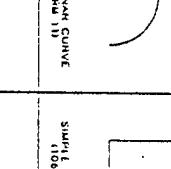
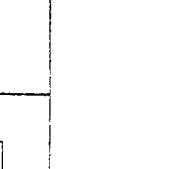
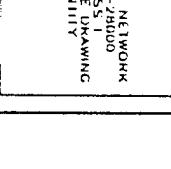
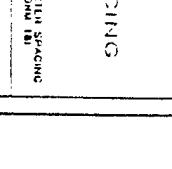
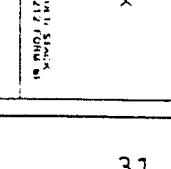
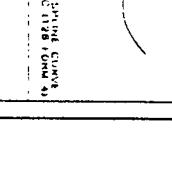
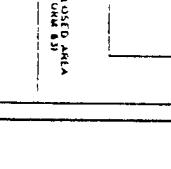
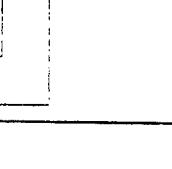

### 10.1.8 Output IGESWorks

<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>
<b>LINE STAGE</b>	<b>DIAGONAL LINE STAGE</b>	<b>HORIZONTAL LINE STAGE</b>	<b>HORIZONTAL LINE INSIDE STAGE</b>	<b>VERTICAL LINE INSIDE STAGE</b>	<b>DIAGONAL LINE INSIDE STAGE</b>	<b>HORIZONTAL LINE OUTSIDE STAGE</b>	<b>VERTICAL LINE OUTSIDE STAGE</b>
<b>&gt;</b>	<b>SIMPLE</b>	<b>UNBALANCED</b>	<b>UNBALANCED</b>	<b>UNBALANCED</b>	<b>UNBALANCED</b>	<b>UNBALANCED</b>	<b>UNBALANCED</b>
<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>
<b>T STACK CENTER</b>	<b>T STACK RIGHT</b>	<b>FRAC STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>
<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>
<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>	<b>UNBALANCED STAGE</b>				

### 10.1.9 Output iges2draw/IslandDraw

CIRCULAR ARC (100)	COMPOSITE CURVE (102)	CONIC ARC - GENERAL (104 FORM 0)	CONIC ARC - ELLIPSE (104 FORM 1)	CONIC ARC - HYPERBOLA (104 FORM 2)	CONIC ARC - PARABOLA (104 FORM 3)	LINEAR PLANAR CURVE (106 FORM 11)	SIMPLE CLOSED AREA (106 FORM 63)
LINE (110)	PARAMETRIC SPLINE CURVE (112)	TRANSFORMATION MATRIX D=1 (124 FORM 0)	RATIONAL B-SPLINE CURVE (126 FORM 0)	RATIONAL B-SPLINE CURVE LINE (126 FORM 1)	RATIONAL B-SPLINE CURVE CIRCULAR ARC (126 FORM 2)	RATIONAL B-SPLINE CURVE ELLIPTICAL ARC (126 FORM 3)	RATIONAL B-SPLINE CURVE PARABOLIC ARC (126 FORM 4)
RATIONAL B-SPLINE CURVE HYPERBOLIC ARC (126 FORM 6)	SIMPLE 	DUAL STACK 	IM+DED	S SUPER	S SUB	S SUPER SUB	M STACK LEFT
GENERAL NOTE - SIMPLE (212 FORM 0)	NOTE - DUAL STACK (212 FORM 1)	NOTE - IMBEDDED FONT CHANGE (212 FORM 2)	NOTE - SUPERSCRIPT (212 FORM 9)	NOTE - SUBSCRIPT (212 FORM 4)	NOTE - SUPER/SUBSCRIPT (212 FORM 6)	NOTE - SUPER/SUBSCRIPT (212 FORM 6)	NOTE - MULTI STACK LEFT JUST (212 FORM 6)
NOTE - MULTI STACK CENT JUST (212 FORM 7)	NOTE - MULTI STACK RIGHT JUST (212 FORM 8)	NOTE - SIMPLE FRACTION (212 FORM 100)	NOTE - DUAL STACK FRACTION (212 FORM 101)	NOTE - FONT/DOUBLE FRACTION (212 FORM 102)	NOTE - SUPER/SUB FRACTION (212 FORM 106)	SECTIONED AREA (230)	INTERCHARACTER SPACING (406 FORM 18)
SINGLE SUBFIGURE INSTANCE (406)	RECTANGULAR SUBFIGURE INSTANCE (412)	CIRCULAR SUBFIGURE INSTANCE (414)					CALS TEST NETWORK MIL-D-28000 CLASS I REFERENCE DRAWING ENTITY

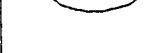
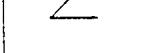
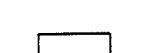
## 10.1.10 Output Preview

CALLISTO NETWORK  
MIL-STD-2160  
CLASS 1  
REFERENCE DRAWING  
1-ENTITY

### 10.1.11 Output Wiz Worx IGESDRAW

Q001

	COMPOSITE CURVE, 11031 CIRCULAR ARC, 11001	CONIC ARC - CENTRAL 1104 FORM 01	CONIC ARC - HYPERBOLA 1104 FORM 11	CONIC ARC - PARABOLA 1104 FORM 31	LINEAR PLANE CURVE 1104 FORM 111	SIMPLE CLOSED AREA (1104 FORM 43)
	LINE, 1110	PARAMETRIC SPINE 1117	TRANSFORMATION 1124 FORM 01	NATIONAL B-SPLINE CURVE 1124 FORM 00	NATIONAL B-SPLINE CURVE 1124 FORM 11	NATIONAL B-SPLINE CURVE 1124 FORM 21
	SIMPLE 1125 FORM 01		DUAL STACK 1125	IMBEDDED 1126 FORM 21	SUPER SUB 1127 FORM 01	SUPER SUB 1127 FORM 51
	M STACK CENTER 1125 FORM 11			NOTE - DUAL STACK 1126 FORM 11	NOTE - SUPERSCRIPT 1127 FORM 21	NOTE - SUPERSCRIPT 1127 FORM 51
	M STACK RIGHT 1125 FORM 11		DUAL TO STACK BOTTOM 1126 FORM 101	IMBEDDED ACT 1126 FORM 21	FR SUP SUB 1127 FORM 01	FR SUP SUB 1127 FORM 101
	SINGLE SURFACE INSTANCE FORM 14131	RECTANGULAR SURF INSTANCE 14131		NOTE - SIMPLE FRACTION 112 FORM 1001	NOTE - DUAL STACK FRACTION 112 FORM 1011	NOTE - SUPERSCRIPT FRACTION 112 FORM 1021
					SECTIONED AREA (1104 FORM 103)	INTERCHARACTER SPACING (1104 FORM 183)
						CALS TEST NETWORK 1104 FORM 28000 REFERENCE DRAWING 1-ENTITY

## 10.2 File D001Q002

### 10.2.1 Parser Log

```
*** IGES DATA FILE ANALYSIS ***
***          MARCH 1992          ***
***    IGES Data Analysis      ***
***          (708) 449-3430      ***
```

Input file is /novell/9343/d001q002.igs

Checking conformance to CALS Class II (MIL-D-28000A 2/10/92)

Today is May 3, 1993 8:51 AM

#### \*\*\* File and Product Name Information \*\*\*

```
File name from sender      = 'C:\AITCALS2.IGS'
File creation Date.Time   = '930427.112155'
Model change Date.Time   = '930427.111359'
Author                    = 'Joel Petersen'
Department                = 'AUTODESK Inc.'
Product name from sender = 'CALS Class II Test File'
Destination product name = 'CALS Class II Test File'
```

#### \*\*\* Parameter Delimiters \*\*\*

```
Delimiter = ','
Terminator = ';'
```

#### \*\*\* Originating System Data \*\*\*

```
System ID                  = 'AutoCAD-12_c2 (386 DOS Extender)'
Preprocessor version        = 'IGESOUT (v5.1.01 Feb 22 1993)'
Specification version      = 6 (IGES 4.0)
```

#### \*\*\* Precision levels \*\*\*

```
Integer bits = 32
Floating point - Exponent = 38 Mantissa = 6
Double precision - Exponent = 99 Mantissa = 15
```

#### \*\*\* Global Model Data \*\*\*

```
Model scale                = 1.0000E+00
Unit flag                  = 1
```

Units = 'IN'  
Line weights = 32767  
Maximum line thickness = 3.276700E+01  
Minimum line thickness = 1.000000E-03  
Granularity = 2.100000E-08  
Maximum coordinate = 2.100000E+01

Drafting standard applicable to original data is ANSI.

\*\*\* Status Flag Summary \*\*\*

Blank status:	Visible	951
	Blanked	2
Independence:	Independent	421
	Physically Subordinate	530
	Logically Subordinate	2
	Totally Subordinate	0
Entity use:	Geometry	550
	Annotation	283
	Definition	120
	Other	0
	Logical/Positional	0
	2D parametric	0
	Not Specified	0
Hierarchy:	Structure DE applies	704
	Subordinate DE applies	249
	Hierarchy property applies	0
	Not Specified	0

\*\*\* Entity Occurrence Counts \*\*\*

Entity	Form	Level	Count	Type
-----	-----	-----	-----	-----
100	0	0	17	Circular arc
100	0	2	2	
105	11	0	7	Copious data - Piecewise planar, linear string(2D path)
106	12	0	135	Copious data - Piecewise linear string(3D linear p
106	40	0	6	Witness line
106	63	0	10	Simple closed planar curve
108	0	0	8	Plane, Unbounded
110	0	0	219	Line
110	0	1	2	

---

116	0	0	12	Point
124	0	0	5	Transformation matrix
124	1	0	1	Orthonormal mirror
126	0	0	13	Rational B-spline curve
202	0	0	1	Angular dimension
206	0	0	1	Diameter dimension
212	0	0	234	General note
212	2	0	2	General note - imbedded font change dimension
214	1	0	1	Leader arrow - Wedge
214	2	0	12	Leader arrow - Triangle
214	4	0	2	Leader arrow - No arrowhead
214	5	0	1	Leader arrow - Circle
214	6	0	1	Leader arrow - Filled circle
214	7	0	1	Leader arrow - Rectangle
214	8	0	1	Leader arrow - Filled rectangle
214	9	0	1	Leader arrow - Slash
214	10	0	1	Leader arrow - Integral sign
214	11	0	1	Leader arrow - Open triangle
216	0	0	2	Linear dimension
218	0	0	2	Ordinate dimension
222	0	0	1	Radius dimension
230	0	0	1	Sectioned area (Standard Crosshatching)
308	0	0	120	Subfigure definition
404	0	0	1	Drawing
406	3	0	1	Property - Level function
406	3	1	1	
406	3	2	1	
406	15	0	1	Property - Name
406	16	0	1	Property - Drawing size
406	17	0	1	Property - Drawing units
408	0	0	121	Single subfigure instance
410	0	0	2	View - Orthographic parallel

\*\*\* Entity Count by Level \*\*\*

Level	Count
0	947
1	3
2	3

\*\*\* Labeling Information \*\*\*

0% of the entities are labeled.

Unlabeled 951

Label	Count	Label	Count
-------	-------	-------	-------

A 1 B 1

\*\*\* Line Fonts Used in Data \*\*\*

100 102 104 106 108 110 112 114

-	-	-	-	8	-	-	-	Undefined
19	-	-	158	-	221	-	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

116 118 120 122 124 125 126 128

-	-	-	-	6	-	-	-	Undefined
12	-	-	-	-	-	13	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

130 132 134 136 138 140 142 144

-	-	-	-	-	-	-	-	Undefined
-	-	-	-	-	-	-	-	Solid
-	-	-	-	-	-	-	-	Dashed
-	-	-	-	-	-	-	-	Phantom
-	-	-	-	-	-	-	-	Center-line
-	-	-	-	-	-	-	-	Dotted
-	-	-	-	-	-	-	-	User defined

\*\*\* Line Widths Used in Data \*\*\*

Weight	Count	Width
Defaulted	953	(0.0010)

\*\*\* Colors Used in Data \*\*\*

Defaulted	143
Yellow	807
White	3

```
*****
***** ENTITY ANALYSIS *****
*****  
  
*** Entity type: 100  
*** Entity type: 106  
*** Entity type: 108  
*** Entity type: 110
```

-- 221 lines averaging 2.215288E+00 units --

```
*** Entity type: 116  
*** Entity type: 124
```

6 transformation matrices, 5 non-zero translations.  
NOTE 2341: 5 matrices contain translation information.

```
*** Entity type: 126  
*** Entity type: 202  
*** Entity type: 206  
*** Entity type: 212
```

238 text strings in data file.  
Average text aspect ratio in file is 0.9898568.  
Minimum text aspect ratio in file is 0.2978364.  
Maximum text aspect ratio in file is 1.2600000.

#### FONTS USED IN FILE

FONT	COUNT	NAME
1	232	Default ASCII Style
1001	2	Symbol Font 1
1002	2	Symbol Font 2
1003	2	Drafting Font

```
*** Entity type: 214
```

Average arrow aspect ratio in file is 3.0000000.  
Minimum arrow aspect ratio in file is 3.0000000.

Maximum arrow aspect ratio in file is 3.0000000.

\*\*\* Entity type: 216

\*\*\* Entity type: 218

\*\*\* Entity type: 222

\*\*\* Entity type: 230

\*\*\* Entity type: 308

Subfigure name at D 153: '\*U0'.

Number of included entities = 6.

Subfigure name at D 163: '\*U1'.

Number of included entities = 3.

<<<< PART OF LOG FILE REMOVED HERE >>>>

Subfigure name at D 1723: '\*U134'.

Number of included entities = 6.

Subfigure name at D 1797: 'ARROW'.

Number of included entities = 4.

\*\*\* Entity type: 404

Drawing at D 1905 contains 2 views.

Drawing at D 1905 contains 0 annotation entities.

\*\*\* Entity type: 406

Independent property at D 13 applies to level 1.

Independent property at D 29 applies to level 0.

Independent property at D 1891 applies to level 2.

\*\*\* Entity type: 408

Subfigure instance at D 155 references subfigure at D 153.

Subfigure instance at D 165 references subfigure at D 163.

<<<< PART OF LOG FILE REMOVED HERE >>>>

Subfigure instance at D 1801 references subfigure at D 1797.

Subfigure instance at D 1805 references subfigure at D 1797.

\*\*\* Entity type: 410

---

Scale of view at D 11 is 1.000000E+00.  
CAUTION 2315: Matrix associated with view contains translation information at D 11.  
Orthographic View entity at D 11 has 4 clipping planes specified.  
XMIN = -11.000 XMAX = 11.000  
YMIN = -8.500 YMAX = 8.500  
ZMIN = Not Set ZMAX = Not Set

Scale of view at D 25 is 1.000000E+00.  
CAUTION 2315: Matrix associated with view contains translation information at D 25.  
Orthographic View entity at D 25 has 4 clipping planes specified.  
XMIN = -1.000 XMAX = 1.000  
YMIN = -0.750 YMAX = 0.750  
ZMIN = Not Set ZMAX = Not Set

\*\*\* Message Summary \*\*\*

\*\*\* Error Summary \*\*\*

0 fatal errors  
0 severe errors  
0 errors  
0 warnings  
2 cautions  
0 nitpicks  
1 notes

\*\*\* End of Analysis of /novell/9343/d001q002.igs \*\*\*

## 10.2.2 Parser Log - AutoCAD R12

Title: IGESIN Journal (v5.1 Nov 05 1992)

=====

File: I:/9343/D001Q002.xli

Date: Tue, May 04, 1993

Time: 06:43:58

=====

EVALUATION VERSION -- NOT FOR RESALE

Translator S/N: 117-10075750

Translating from IGES file: I:/9343/D001Q002.IGS  
to AutoCAD Drawing: C:\D001Q002.dwg

=====

Options obtained from: default settings

Curves Approximated to Tolerance of 0.01

Surfaces Approximated to Tolerance of 0.01

Text Font/Style mapping:

IGES Text font	Style Name	ACAD Font
0	SYMBOL0	iges0
1	STANDARD	txt
2	LEROY	txt
3	FUTURA	txt
6	COMP80	txt
12	GOTHICE	gothice
13	GOTHICI	gothici
14	ROMANS	romans
17	ROMANT	romant
18	ROMAND	romand
19	OCR	txt
1001	SYMBOL1	iges1001
1002	SYMBOL2	iges1002
1003	SYMBOL3	iges1003
2001	KANJI	bigfont

IGES Linefont/AutoCAD Linetype mapping

IGES Line Font	AutoCAD linetype	Shape file
0	BYLAYER	
1	CONTINUOUS	
2	DASHED	acad.lin
3	PHANTOM	acad.lin
4	CENTER	acad.lin

5

DOT

acad.lin

=====  
Parse phase

=====  
Start Section:

CONFORMANCE:

This IGES file conforms to Class II (Engineering Drawing Subset) of the MIL-D-28000A (10 February 1992) specification.

CREATED BY:

Joel Petersen  
AUTODESK Inc.  
2320 Marinship Way  
Sausalito CA, 94965  
(415) 289-4279

DATE: 27 April 1993

PART NAME: CALS Class II Test file

DRAWING NAME: AITCALS2.DWG

DESCRIPTION: Test file for AFCTN to evaluate AIT.

REVISION: A

DRAWING SIZE

AND NUMBER: One C-Size

LEVEL SCHEME:

Level	Description
0	0
2	0_0
1	0_B

Global Section:

Parameter Delimiter: ,  
Record Delimiter: ;  
Sending Product ID: CALS Class II Test File  
File Name: C:\AITCALS2.IGS  
System ID: AutoCAD-12\_c2 (386 DOS Extender)

---

---

Preprocessor Version: IGESOUT (v5.1.01 Feb 22 1993)  
Size of Integer: 32  
Sgl. Precision Mag: 38  
Sgl. Precision Sig: 6  
Dbl. Precision Mag: 99  
Dbl. Precision Sig: 15  
Receiving Product ID: CALS Class II Test File  
Model Space Scale: 1.000000  
Unit Flag: 1  
Unit String: IN  
# of Line Weights: 32767  
Maximum Line Width: 32.767000  
Creation Date: 04/27/93 11:21:55  
Minimum Resolution: 0.000000  
Maximum Coordinate: 21.000000  
Author: Joel Petersen  
Organization: AUTODESK Inc.  
IGES Version Number: 6  
Drafting Standard: 3

Entity Summary:

Type	Form	Description	Count
100	0	Circular Arc	19
106	11	Planar Piecewise Linear Curve	7
106	12	Piecewise Linear Curve	135
106	40	Witness Line	6
106	63	Simple Closed Planar Curve	10
108	0	Plane (Unbounded)	8
110	0	Line	221
116	0	Point	12
124	0	Transformation Matrix	5
124	1	Negative Determ. Trans. Matrix	1
126	0	Rational B-Spline Curve (General)	13
202	0	Angular Dimension	1
206	0	Diameter Dimension	1
212	0	General Note (Simple)	234
212	2	General Note (Font change)	2
214	1	Leader (Wedge)	1
214	2	Leader (Triangle)	12
214	4	Leader (No arrowhead)	2
214	5	Leader (Circle)	1
214	6	Leader (Filled circle)	1
214	7	Leader (Rectangle)	1
214	8	Leader (Filled rectangle)	1
214	9	Leader (Slash)	1

214	10	Leader (Integral sign)	1
214	11	Leader (Open triangle)	1
216	0	Linear dim - undetermined form	2
218	0	Ordinate Dimension	2
222	0	Radius Dimension (Single Leader)	1
230	0	Section Area (Standard Fill)	1
308	0	Subfigure Definition	120
404	0	Drawing (form 0)	1
406	3	Property (Level Function)	3
406	15	Property (Name)	1
406	16	Property (Drawing Size)	1
406	17	Property (Drawing Units)	1
408	0	Subfigure Instance	121
410	0	View	2
-----			
		Total	953
=====			

#### Translation phase

\*\*\* Warning (ACAD\_NONUNIQUE\_SUBFIGURE\_NAME) \*\*\*  
( DE: 235 TF: 308:0 )  
Subfigure name "\*\*U7" is nonunique and has been replaced with "235".

\*\*\* Warning (ACAD\_NONUNIQUE\_SUBFIGURE\_NAME) \*\*\*  
( DE: 337 TF: 308:0 )  
Subfigure name "\*\*U15" is nonunique and has been replaced with "337".

\*\*\* Warning (ACAD\_NONUNIQUE\_SUBFIGURE\_NAME) \*\*\*  
( DE: 471 TF: 308:0 )  
Subfigure name "\*\*U35" is nonunique and has been replaced with "471".

Drawing Entity (404 Form 0) at DE 1905, with  
name = C:\CALS2,  
size = 8.500000, 11.000000,  
units = IN,  
was processed in the AutoCAD drawing file: C:\D001Q002.dwg

#### IGES Entity Summary

Type	Form	Description	Count	Processed	Errors
=====	=====	=====	=====	=====	=====
100	0	Circular Arc	19	19	0
106	11	Planar Piecewise Linear Curve	7	7	0
106	12	Piecewise Linear Curve	135	135	0
106	40	Witness Line	6	6	0
106	63	Simple Closed Planar Curve	10	10	0

108	0 Plane (Unbounded)	8	8	0
110	0 Line	221	221	0
116	0 Point	12	12	0
126	0 Rational B-Spline Curve (General)	13	13	0
202	0 Angular Dimension	1	1	0
206	0 Diameter Dimension	1	1	0
212	0 General Note (Simple)	234	234	0
212	2 General Note (Font change)	2	2	0
214	1 Leader (Wedge)	1	1	0
214	2 Leader (Triangle)	12	12	0
214	4 Leader (No arrowhead)	2	2	0
214	5 Leader (Circle)	1	1	0
214	6 Leader (Filled circle)	1	1	0
214	7 Leader (Rectangle)	1	1	0
214	8 Leader (Filled rectangle)	1	1	0
214	9 Leader (Slash)	1	1	0
214	10 Leader (Integral sign)	1	1	0
214	11 Leader (Open triangle)	1	1	0
216	0 Linear dim - undetermined form	2	2	0
218	0 Ordinate Dimension	2	2	0
222	0 Radius Dimension (Single Leader)	1	1	0
230	0 Section Area (Standard Fill)	1	1	0
308	0 Subfigure Definition	120	120	0
404	0 Drawing (form 0)	1	1	0
406	3 Property (Level Function)	3	3	0
406	15 Property (Name)	1	1	0
406	16 Property (Drawing Size)	1	1	0
406	17 Property (Drawing Units)	1	1	0
408	0 Subfigure Instance	121	121	0
410	0 View	2	2	0
<hr/>				
<b>Totals</b>		<b>947</b>	<b>947</b>	<b>0</b>

AutoCAD Entity Summary

Entity	Created	Errors
LINE	234	0
POINT	12	0
CIRCLE	7	0
TEXT	229	0
ARC	13	0
SOLID	1	0
INSERT	149	0
POLYLINE	170	0
DIMENSION	7	0
BLOCK	146	0

Totals =====  
968 0

---

Error Summary:

The following message was issued 3 time(s)  
Subfigure name "%s" is nonunique and has been replaced with "%s".

Status: 0  
Warning: 3  
Error: 0  
Fatal: 0

Elapsed Time:

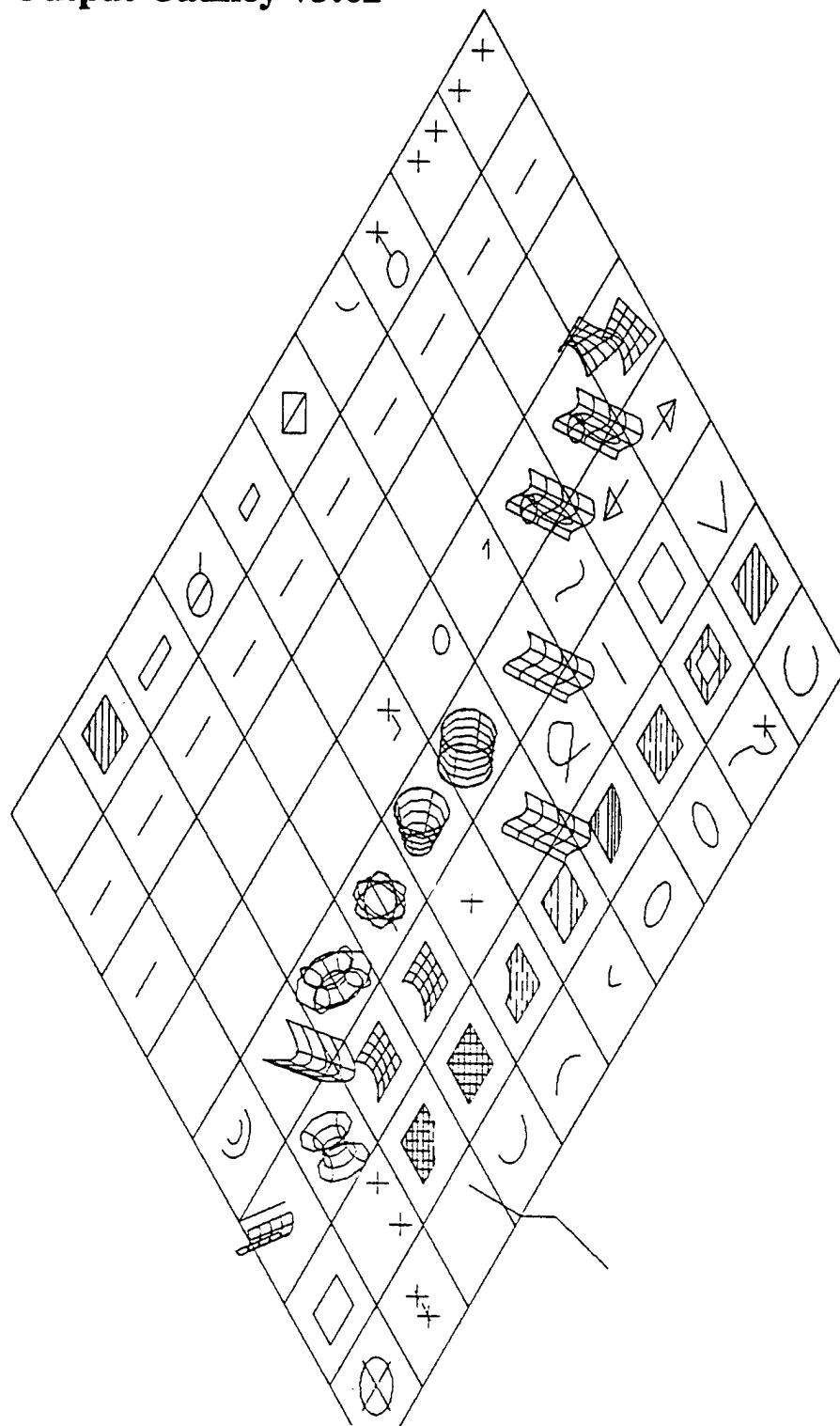
Processor: 00:01:00  
Clock: 00:00:60

---

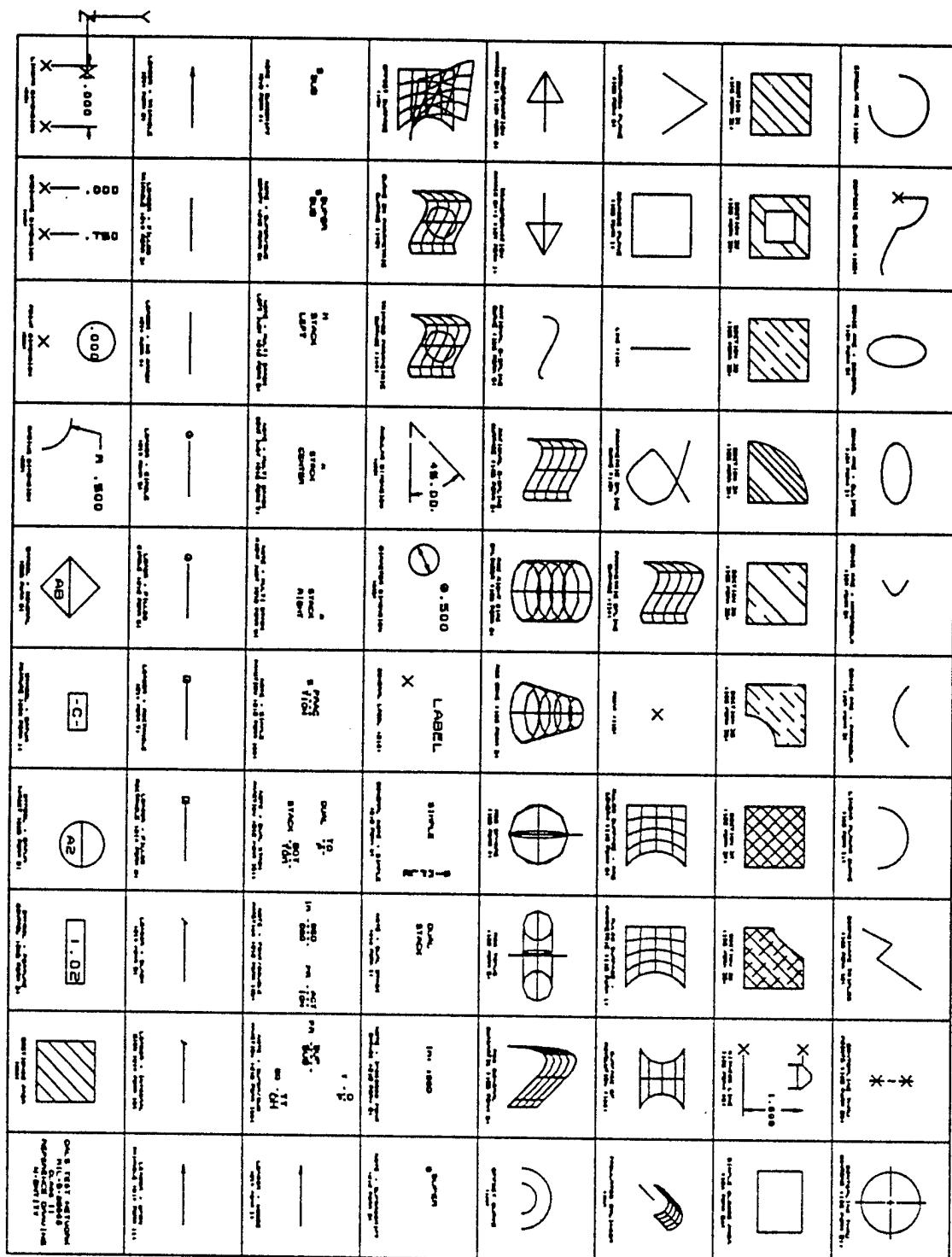
### 10.2.3 Output AutoCAD R12

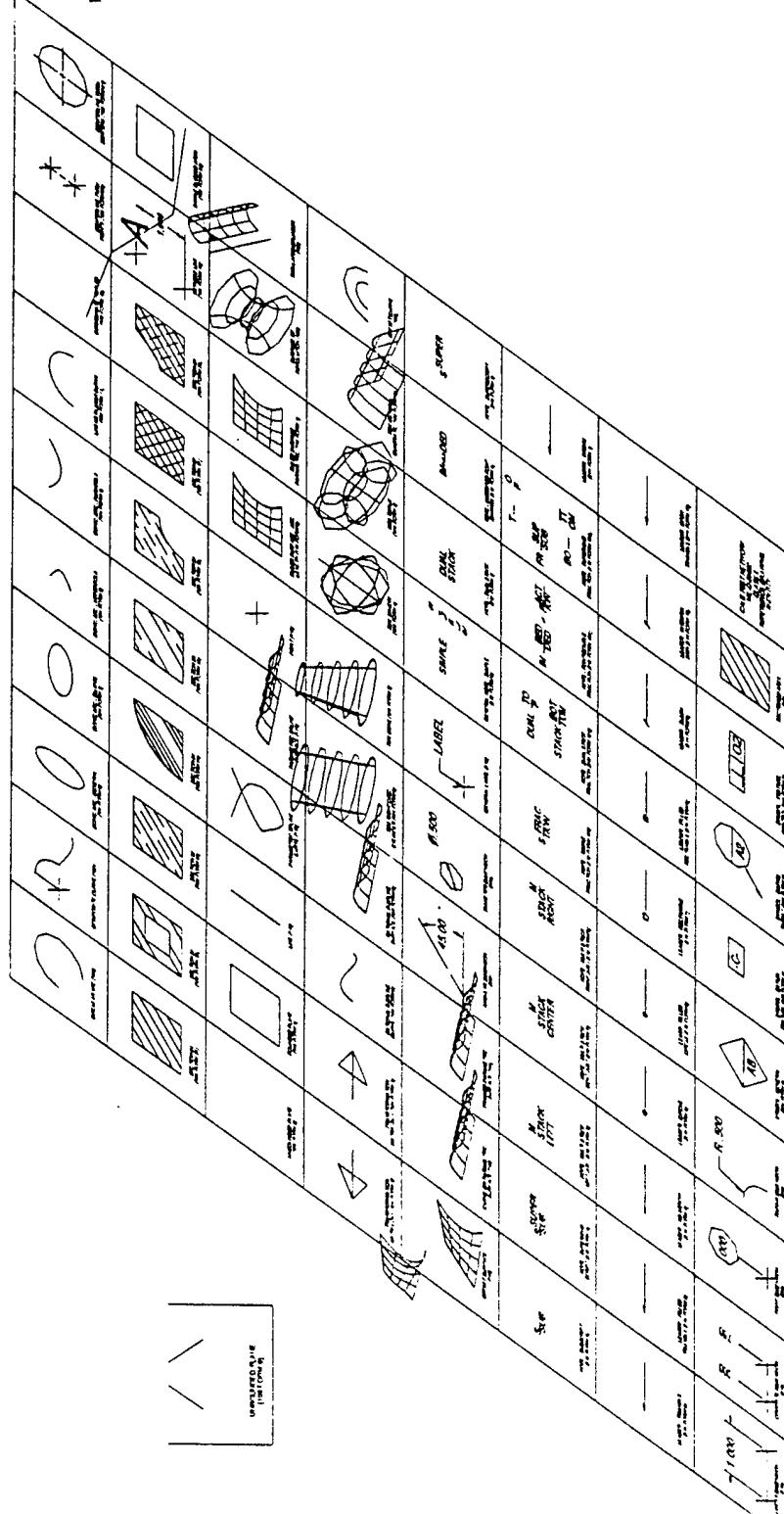
#### 10.2.4 Output Cadkey v5.02



## 10.2.5 Output CheckMark v1.00



## 10.2.6 Output IGESView Windows



## 10.2.7 Output IGESView

	<img alt="Hatched surface tool								

## 10.2.8 Output IGESWorks

## 10.2.9 Output iges2draw/IslandDraw

CIRCULAR ARC (103)	COMPOSITE CURVE (102)	CONIC ARC - GENERAL (104 FORM 0)	CONIC ARC - ELLIPSE (104 FORM 1)	CONIC ARC - HYPERBOLA (104 FORM 2)	CONIC ARC - PARABOLA (104 FORM 3)	LINEAR PLANAR CURVE (108 FORM 11)	COORDINATE TRIPLES (108 FORM 12)	CENTERLINE THRU POINTS (108 FORM 20)	CENTERLINE THRU CENTERS (108 FORM 21)
SECTION 51 (108 FORM 51)	SECTION 52 (108 FORM 52)	SECTION 53 (108 FORM 53)	SECTION 54 (108 FORM 54)	SECTION 55 (108 FORM 55)	SECTION 56 (108 FORM 56)	SECTION 57 (108 FORM 57)	SECTION 58 (108 FORM 58)	WITNESS LINE (108 FORM 40)	SIMPLE CLOSED AREA (108 FORM 63)
UNBOUNDED PLANE (108 FORM 0)	BOUNDED PLANE (108 FORM 1)	LINE (110)	PARAMETRIC SPLINE CURVE (112)	PARAMETRIC SPLINE SURFACE (114)	POINT (116)	RULED SURFACE - ARC LENGTH (118 FORM 0)	RULED SURFACE - PARAMETRIC (118 FORM 1)	SURFACE OF REVOLUTION (120)	TABULATED CYLINDER (122)
TRANSFORMATION MATRIX D=1 (124 FORM 0)	TRANSFORMATION MATRIX D=-1 (124 FORM 1)	RATIONAL B-SPLINE CURVE (124 FORM 0)	RATIONAL B-SPLINE SURFACE (124 FORM 0)	RBS CONE (128 FORM 3)	RBS SPHERE (128 FORM 4)	RBS TORUS (128 FORM 5)	RBS GENERAL QUADRATIC (128 FORM 9)	OFFSET CURVE (130)	
OFFSET SURFACE (140)	CURVE ON PARAMETRIC SURFACE (142)	TRIMMED PARAMETRIC SURFACE (144)	ANGULAR DIMENSION (202)	DIAMETER DIMENSION (206)	LABEL	SIMPLE	DUAL STACK	IMBEDDED	SUPER
NOTE - SUBSCRIPT (212 FORM 4)	NOTE - SUPERSCRIPT (212 FORM 5)	NOTE - MULTI STACK LEFT JUST (212 FORM 6)	NOTE - MULTI STACK CENT JUST (212 FORM 7)	NOTE - MULTI STACK RIGHT JUST (212 FORM 8)	FRACTION (212 FORM 100)	NOTE - DUAL STACK FRACTION (212 FORM 101)	NOTE - DUAL STACK FRACTION (212 FORM 102)	NOTE - FONT/DYNAMIC FRACTION (212 FORM 103)	NOTE - SUPERIOR FRACTION (212 FORM 105)
LEADER - TRIANGLE (214 FORM 2)	LEADER - FILLED TRIANGLE (214 FORM 3)	LEADER - NO ARROW (214 FORM 4)	LEADER - CIRCLE (214 FORM 5)	LEADER - FILLED CIRCLE (214 FORM 6)	LEADER - RECTANGLE (214 FORM 7)	LEADER - FILLED RECTANGLE (214 FORM 8)	LEADER - SLASH (214 FORM 9)	LEADER - INTEGRAL SIGN (214 FORM 10)	LEADER - OPEN TRIANGLE (214 FORM 11)
LINEAR DIMENSION (216)	ORDINATE DIMENSION (218)	POINT DIMENSION (220)	RADIUS DIMENSION (222)	SYMBOL - GENERAL (228 FORM 0)	SYMBOL - DATUM FEATURE (228 FORM 1)	SYMBOL - DATUM TARGET (228 FORM 2)	SYMBOL - FEATURE CONTROL (228 FORM 3)	SECTIONED AREA (230)	CALSTEST NETWORK M-D-28000 C-2000 REFERENCE DRAWING N-ENTITY

### 10.2.10 Output Preview

### 10.2.11 Output Wiz Worx IGESDRAW

9002